

The background features three large, overlapping circles in shades of blue. Two thin, light blue lines intersect at a point in the upper left quadrant, extending diagonally across the page. The circles are positioned in the top right, middle right, and bottom right areas.

Improving Graphic Literacy Skills

Strategies for the Classroom

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<i>Information and Classroom Strategies for Graphic/Visual</i>	3
<i>Literacy</i>	3
Introduction to Graphic/Visual Literacy	3
Strategy 1: Question and Answer Relationships - QAR	3
Key Features Table	5
Strategy 2: Generating Interactions between Schemata and Text - GIST	7
Getting the GIST– 5 Ws and H	7
<i>Introduction to Charts, Tables, and Graphs</i>	8
Charts and Tables	9
Circle Graphs/Pie Charts	11
Bar Graphs	12
Histograms	13
Pictographs	14
Line Graphs	15
Scatter Plots	17
Box and Whisker Plot (Boxplot)	17
Misleading Graphs	18
<i>Selecting the Right Graph</i>	19
Teaching Graphic Literacy Vocabulary Knowledge	19
<i>Other Types of Graphics for the GED® Classroom and the Real World</i>	21
Photographs	21
Editorial Cartoons	23
Cartoon Analysis Worksheet	25
Timelines	26
Maps	27
Process Diagrams, Flow Charts, and Cycles	28

Information and Classroom Strategies for Graphic/Visual Literacy

Introduction to Graphic/Visual Literacy

Adults are surrounded by graphic/visual information. From charts, tables, and graphs to photographs, diagrams, and editorial cartoons, adults encounter information provided through graphics at home, in the car on the way to work, and in the workplace. Adults make decisions based on this graphic input of data in their daily lives and in the workplace. Today, more than ever, graphic/visual literacy is an essential skill.

This resource guide is designed to provide adult educators with basic information about the types of graphics used on the GED® tests and strategies that can be used in the classroom. More than 50% of the questions on the GED® Mathematical Reasoning, Social Studies, and Science Tests include graphics of some sort. If students are to be successful on these tests, then they must have the graphic or visual literacy skills.

On the GED® tests, students encounter the following types of graphic-based material.

- graphs (line, bar, circle, histograms, pictographs, scatter plots, box and whisker)
- tables and charts
- maps
- political cartoons
- photographs
- process diagrams, cycles
- timelines

Visual literacy is the ability to understand, create, and use visual images. It includes three parts:

- Visual thinking – the ability to transform thoughts, ideas, and information into all types of pictures, graphics, and other images that help communicate that information
- Visual communication – the use of pictures, graphics, and other images to express ideas from which the receiver can construct meaning.
- Visual learning – the process of learning from pictures and the media, and the ability to construct knowledge from seeing the visual image.

Strategy 1: Question and Answer Relationships - QAR

QAR is a reading technique, whose acronym stands for Question and Answer Relationships. Incorporating QAR can assist students in better comprehending graphics and using that information to correctly answer questions.

Guide Sheet to Using QARs with Graphics

<p style="text-align: center;"><u>Right There</u></p> <p>The answer is in the graphic.</p> <p>The answer is usually easy to find. (You can put your finger on the page and point to the answer.)</p> <p>The words used to make up the question and the words or numbers used to answer the question are Right There in the graphic, often as one or more of the labels.</p>	<p style="text-align: center;"><u>Author and You</u></p> <p>The answer is not in the graphic.</p> <p>You can use the information you already know about the topic</p> <p style="text-align: center;">AND</p> <p>Any information the author has provided in the paragraph or graphic to answer the question.</p> <p>Use your knowledge and the author's information to answer the question.</p>
<p style="text-align: center;"><u>Think and Search</u></p> <p>The answer is in the graphic; however, you must put together different graphic elements (titles, legend, data) to reach the answer.</p> <p>The words in the question and the words or numbers needed to answer the question are not the same.</p> <p>Think and Search different sections or elements of the graphic to answer the question. More than one graphic may need to be consulted.</p>	<p style="text-align: center;"><u>On Your Own</u></p> <p>The answer is not in the graphic.</p> <p>Using the information you already know about the topic or based upon your experience, you can answer the question.</p> <p style="text-align: center;">HOWEVER</p> <p>Reading the graphic will usually expand your knowledge and will help you give a specific or clearer answer to the question.</p>

Adapted from Raphael, T. (1986). Teaching Question-Answer Relationships, Revised. *The Reading Teacher*, 39, 516-522 and Mesmer, H. A. E., & Hutchins, E. J. (2002). Using QARS with Charts and Graphs. *The Reading Teacher*, 56, 21-27.

To incorporate the QAR taxonomy in analyzing graphics, the following three steps need to be instituted:

- Identify the type of graphic to be analyzed
- Understand relationships in graphics
- Use QARs with questions and graphics

The first step in teaching graphics using QAR is for students to understand different types of graphs. Present different types of graphs in the classroom and have students identify the key attributes of each type of graph using a "Key Features Table."

Key Features Table

Type of Graphic	Main Components	Pros	Cons	Uses	Samples

Next, have students go on a graphics hunt. Have students share the graphics that they have found in different resource materials. These sample graphics are useful as students go to the next step of the learning process.

Understanding the relationships in graphics requires that students think abstractly and make inferences.

Discussion on different types of graphs should include introductory questions, such as:

- What does this graphic tell you?
- What types of data do you see – words, numbers, or pictures?
- How are the data organized?
- Are the data shown in ways other than numbers and words?
- What are the advantages and disadvantages of this particular graphic type?

Students may wish to add a “Uses” column to their “Key Features Table.”

Once students fully understand graphic types and the relationships each communicate, QARs can be taught. Question-Answer Relationship or QAR (Raphael, 1982; 1986) is a great way to help students figure out how to go about answering questions based on a given text and/or graphic. Often students assume that every question’s answer is directly stated somewhere in the text or graphic, if only they look hard enough. Thus,

many students spend far too much time looking for answers that are not “right there” and their frustration mounts. Teaching students the four basic question-answer relationships is a valuable strategy that will help them to understand the different types of questions and know how to effectively and efficiently approach the text or graphic based on the different question types.

What Does It Look Like?

Helping students analyze the question-answer relationships will enable them to become skillful at analyzing the types of questions that they are typically asked to respond to when reading a text or graphic.

Have students use the QAR strategy to locate the correct answers on a multiple-choice question. The six-step process is as follows:

- **Read the question** – Stress that students read the question and not the answer choices. Reading the question is an age-old test-taking strategy that helps students focus on important information as they read. However, students often become distracted by the choices. They look at the choices, quickly cross-reference the choices with the data in the graphic and then gravitate to any matches that they noted, even if the choices do not accurately answer the question asked.
- **Review the graphic** – Have students read the title, labels, and units and then reflect on the type of graphic used.
- **Reread the question** – Now have students reread the question to remind themselves of the focus. Reading the question twice ensures that students focus on the specific information requested.
- **Assign a QAR** – At this step, have students identify the QAR strategy that they will use to determine a correct answer.
- **Answer the question** – Students often want to go straight to the answers and select their choice. Have students first answer the question without referring to the choices. This requires that students think more analytically and troubleshoot the graphic if their answer is not one of the choices provided.
- **Locate the answer** in the answer choices – Finally, have students locate their answer in the answer choices.

Strategy 2: Generating Interactions between Schemata and Text - GIST

The GIST is a reading strategy that

- Improves a student's ability to comprehend the main idea a graphic
- Provides a prescription for answering the 5Ws and an H.
- Helps the student summarize the main idea of a graphic
- Incorporates graphic/visual literacy and writing, both necessary skills for students.

Getting the GIST– 5 Ws and H

Name of Text _____

Who?	
What?	
When?	
Where?	
Why?	
How?	

Write a GIST statement of 20 words or less that summarizes the text.

Introduction to Charts, Tables, and Graphs

Charts and graphs are essential in the workplace. Data from charts, tables, and graphs are used to make decisions. Graphs are useful tools in that they organize data so the information becomes clearer. This organized information can then be used to draw conclusions, to make decisions, or to influence others. Data is organized in a variety of fashions, from charts, tables, and graphs, to computer-generated spreadsheets.

Graphs, tables, and statistics make data easier to understand. Adults should be able to create graphs for clarity and understanding, for themselves and for others. Sometimes seeing the data in chart form makes the decision-making process easier since the information is clearer. Even when charts and graph are not initiated by adults, they do tend to make the information easier to digest. Charts and graphs are also used for record keeping such as spreadsheets and data bases.

According to the GED® Testing Service analysis, there is a concern regarding students' lack of understanding and their ability to read and interpret statistical information, including charts and graphs. Students also exhibited a misuse of statistical information in their selection of incorrect answers. Transferability is a difficult skill to acquire. Although students may understand the parts of a graphic, they must also be able to understand and interpret the data included.

Implications for Learning and Teaching

To successfully assist students in becoming graphically literate, the classroom should include more work-related charts, tables, graphs, and other statistical information necessary to better prepare adult learners for the world of work. Adult learners need much more than simple activities where they are asked to find literal bits of information in charts and graph. They need opportunities to collect their own data and then create their own charts and graphs. Providing students with the actual experience of gathering data, deciding how to represent the data, and interpreting the results will give them a deeper understanding of statistical information. In designing their own charts and graphs, adult learners begin to understand how data can be represented.

Charts and Tables

Charts and tables appear everywhere in real-life situations, from tax tables to class rankings. Using a chart or table to list information according to category is often much clearer than writing out of the information in paragraph form. Tables present data or information in a series of rows and columns. They permit rapid access to and relatively easy comparison of information. If the data is arranged chronologically (for example, population figures over a ten-year period), the table can show *trends* — patterns of rising or falling activity. The biggest use of tables is for numerical data. However, tables can also be used to compare and contrast information. A table could be used to compare different characteristics of states or countries. Whenever you have situations where you discuss several things about which you provide the same categories of detail, you've got a possibility for a table.

Parts of a Chart or Table

Table Title – A title gives an overview of the information displayed in the chart or table. The title is given at the top of the chart or table.

Row/Column Labels – The label of each row or column indicates what type of information is contained in that row or column.

TOTAL ECONOMIC IMPACT		
JOBS AND RETIREES	PAYROLL	PEOPLE
Direct Jobs	\$497,425,367	13,024
Indirect Jobs	\$1,205,666,762	36,157
Retirees	\$283,419,936	14,044
TOTAL	\$1,986,512,065	63,225
DEPENDENTS		PEOPLE
Active Duty Military Dependents		7,476
Guard & Reserve Dependents		3,435
Civilian Dependents		7,398
Retiree Dependents		21,909
TOTAL		40,218
EXPENDITURES		
Local Contracts	\$32,890,837	
Contract Quarters	\$5,296,100	
Education Impact Aid Funds	\$7,498,222	
Basic Allowance for Housing	\$40,855,699	
TOTAL	\$86,540,858	
TOTAL IMPACT	\$2,073,052,923	103,443

Individual Cells – Each cell is defined by its row and column location.

Relationship of Cells – Often, one wants to determine whether or not there is a trend within rows or columns. For example, do the values increase as one moves up or down a row or column? If so, a relationship is shown.

This table was developed to show the overall economic impact of Scott Air Force Base on the St. Louis region. This table shows the total economic impact of Scott AFB is more than \$2 billion annually and affects more than 100,000 people.

Constructing a Chart or Table

To create a chart or table, the following things must be determined:

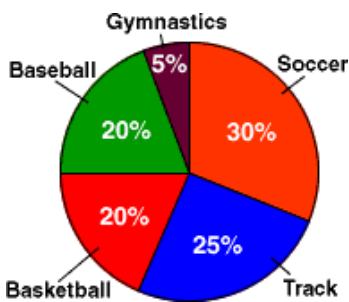
- **Title of the Chart or Table** – This should be descriptive of the data contained in the paragraph or information to be used. It should give some clue as to the data contained in the table, as well as any pertinent information, such as the year of the data collection.
- **Label Rows and Columns** – The row/column labels come from the types of information that will be displayed in the chart or table. A label is needed for each piece of information included in the chart or table.
- **Determine Number of Necessary Rows and Columns** – To determine the number of rows and/or columns necessary, identify the different types of information presented about the topic. Once the

labels are identified, count the number of instances of data. From this count, the total number of rows and columns needed can be determined.

- Data Entry for Each Cell – Once the chart or table is developed, the information can be filled in for each instance. If there is numerical data, such as rank, it should be ordered from low to high or high to low.

Circle Graphs/Pie Charts

Circle graphs are used to show the relationship of parts to the whole. Students must be able to calculate percentages to be successful using circle graphs. Have students practice developing circle graphs by calculating data such as: the various age ranges within the classroom, or average annual incomes represented in the classroom. Provide students with copies of circle graphs from local newspapers or USA Today and have them interpret the information provided.



ing data such as: the various age ranges within the classroom, or average annual incomes represented in the classroom. Provide students with copies of circle graphs from local newspapers or USA Today and have them interpret the information provided.

This graph shows the percentage of students participating in each sport at a local high school. Students should be able to construct their own graphs to show the relationship of parts to the whole.

Parts of a Circle Graph/Pie Chart

Graph Title – A graph title gives an overview of the information displayed in the graph. The title is given at the top of the graph.

Sectors – Each sector represents one part of the whole. The size of each sector represents its fraction of the whole.

Sector Labels – The label of each sector indicates the category of information to which it refers and may also give numeric data (often a percentage) so the size of the sector is known.

Constructing a Circle Graph/Pie Chart

To create a circle graph/pie chart, the following things must be determined:

- **Suitability of Data** – Determine if there is a "whole" for the data. Then determine what the different parts, or data groups, of the whole are.
- **Calculate Percentages** – For data that is not already given as a percentage, convert the amounts for each part, or data group size, into a percentage of the whole. If information is not in tabular form, it is easiest to first place information in a table, prior to calculating the percentages and drawing the graph.
- **Draw the Graph** – Draw a circle and draw in a sector for each data group. Try to make the sector sizes look as close to the percentage of the circle as the percentage of the data group.
- **Title and Label the Graph** – Label the sectors with the data group name and percentage. A legend can also be used to identify the sectors with different coloring or patterns used to indicate the sectors of the chart. Add a title to the graph. The title should provide a description of the data contained within the chart.

Bar Graphs

A bar graph is a visual display used to compare the amounts or frequency of occurrence of different characteristics of data. Bar graphs are generally used to:

- compare groups of data
- make generalizations about data

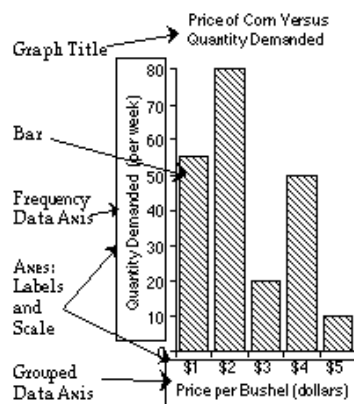
Bars can be displayed vertically or horizontally. Bar graphs can also show data through individual or multiple bars for each element.

Parts of a Bar Graph

Graph Title – The graph title gives an overview of the information being presented in the graph. The title is given at the top of the graph.

Axes and Labels – Each graph has two axes. The axes labels describe what information is presented on each axis. One axis represents data groups; the other represents the amounts or frequency of data groups.

Grouped Data Axis – The grouped data axis is always at the base of the bars. This axis displays the type of data being graphed.



Frequency Data Axis – The frequency axis has a scale that is a measure of the frequency or amounts of the different data groups.

Axes Scale – Scale is the range of values being presented along the frequency axis. Scale is important when determining accuracy and reliability of the graphic.

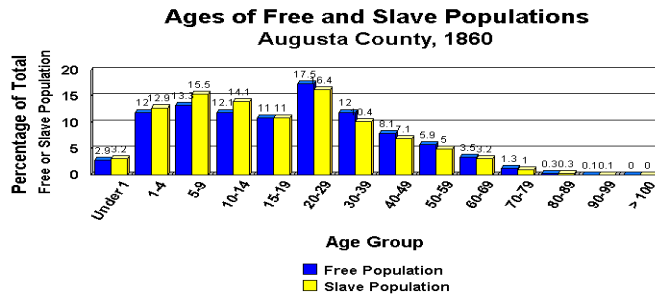
Bars – The bars are rectangular blocks that can have their base at either the vertical axis or horizontal axis. Each bar represents the data for one of the data groups.

Constructing a Bar Graph

To create a bar graph, the following things must be determined:

- **Title of the Graph** – This should be descriptive of the data and give some clue as to the data contained in the graph, as well as any pertinent information.
- **Label Each Axis** – Determine which is to be the frequency axis and which is to be the grouped data axis and label both. After determining which axis will be the frequency axis, decide whether the bars will go horizontally or vertically. Write in the axes labels.
- **Determine the Scale for Each Axis** – Determine the numerical scale for the frequency axis and then the group names for grouped data axis.
- **Determine Frequency Axis** – Determine which axis will be the frequency axis and then decide whether the bars will go horizontally or vertically.

- Data Entry – Use the data to draw in the bars on the graph. It is easiest if the data is first inserted into a table prior to setting up the bar graph.



This bar graph shows the free and slave population based on ages in Augusta County, Georgia in 1860. This type of bar graph has double bars to show the two types of population that are included – free versus slave.

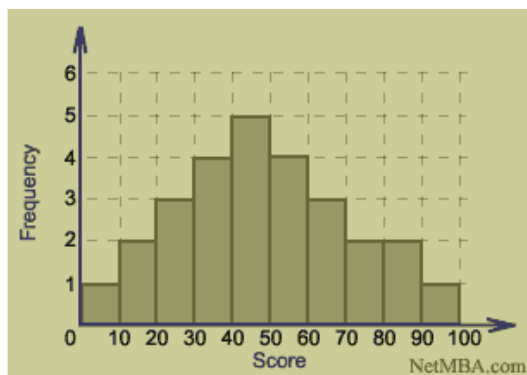
Multiple or group bar graphs, such as the one shown, are used when each data group contains two or more different sets of frequency data. Multiple bar graphs compare both between and within data groups.

Although they have similar attributes and advantages of regular bar graphs, there are some major differences.

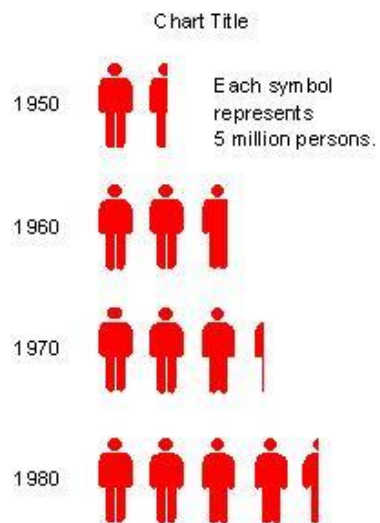
- Double or multiple bar graphs allow generalizations about differences within data groups, as well as between data groups.
- Each data group is represented by two or more bars.

Histograms

A type of bar graph, a histogram, shows two dimensional frequencies where both the height and the width of the bar tell you about the data. The bars touch in a histogram because data elements are grouped and form a continuous range from left to right. In a histogram, both the x and y axis are numerical rather than categorical in nature.



Pictographs



Source:

A pictograph is used to present statistics in a popular yet less statistical way to those who are not familiar with charts that contain numerical scales. This type of chart presents data in the form of pictures drawn to represent comparative sizes, scales or areas.

This is an example of a pictograph developed by the Pennsylvania Department of Health used to show a comparison of population over successive decades.

Line Graphs

Line graphs are more popular than all other graphs combined because their visual characteristics reveal data trends clearly and these graphs are easy to create. Line graphs are one of the most common tools used to present data. A line graph is a visual comparison of how two variables—shown on the x- and y-axes—are related or vary with each other. It shows related information by drawing a continuous line between all the points on a grid. Although they do not present specific data as well as tables do, line graphs are able to show relationships more clearly than tables do.

Line graphs can also depict multiple series which are usually the best candidate for time series data and frequency distribution. A multiple line graph can effectively compare similar items over the same period of time. When drawing a line, it is important that you use the correct scale. Otherwise, the line's shape can give readers the wrong impression about the data.

Line graphs have the following properties:

- An x and a y axis that indicate independent and dependent variables
- Points that may or may not be connected by a line located on a grid

Parts of a Line Graph

Graph Title – A graph title gives an overview of the information displayed in the graph. The title is given at the top of the graph.

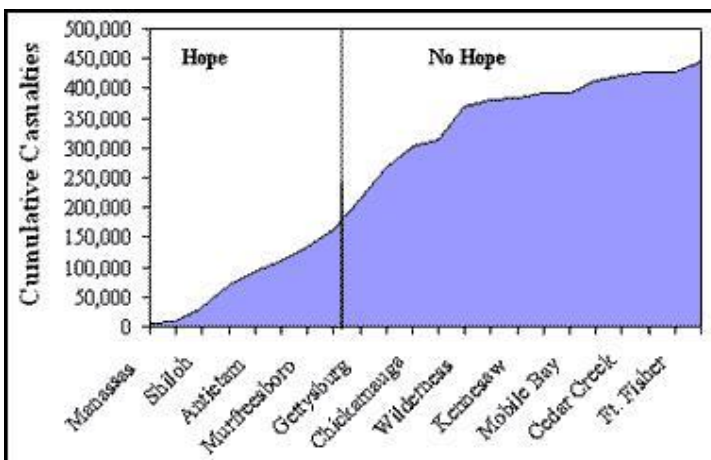
X and Y Axes – Each axis shows an independent and a dependent variable. Generally, the x-axis shows the independent variable, whereas the y-axis shows the dependent variable. The axis generally begins at zero, although a negative amount can also be shown with the 0 line being bolded. Also included is the scale of each of the axis.

Axes Labels – The label of each axis indicates the information provided by the independent and dependent variable.

Plots and Lines – Generally, line graphs show an increase, decrease, or stability by plotting points on the grid and then connecting those points with an appropriate slope of a line.

Sample of Line Graph in Social Studies

Casualties of War – Civil War



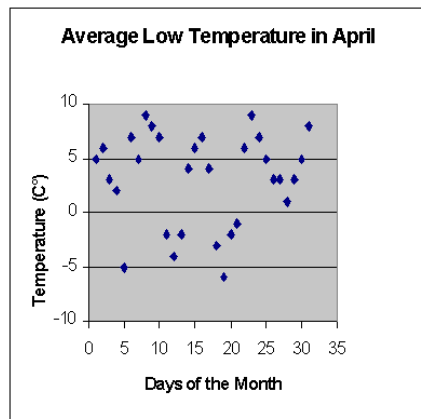
This line graph shows the cumulative number of Civil War casualties as the major battles of the war proceeded. The graph is demarcated into sections labeled "Hope" (prior to Gettysburg and Vicksburg) and "No Hope". Not only did half the casualties occur after the war was lost by the South, but the speed at which casualties occurred sharply accelerated. The killing slowed after the South had bled nearly to death, with many regiments unable to field more than a handful of men.

Constructing a Line Graph

To construct a line graph on paper, use the following steps.

- **Identify the Variables** – Determine the independent variable and place it on the x-axis (horizontal). Next place the dependent variable (the one that changes with the independent variable) on the y-axis (vertical).
- **Determine the Scale** – Determine a numerical value for each square that best fits the range of each variable. It is important when determining the scale to spread the graph to use the most of the available space.
- **Number and Label the Axes** – Indicate what data the lines on the graph represent by document the numbering system and labeling the axes.
- **Plot the Data Points** – Plot each data value on the graph with a dot.
- **Draw the Graph** – Draw a curve or line that best fits the data points. Some graphs do not use a “connect-the-dot” system, especially in experimental documents.
- **Title the Graph** – Add a title to the graph. The title should provide a description of the data contained within the graph. If the graph has more than one set of data, a “key” should be provided to identify the different lines.

Scatter Plots



Scatter plots are similar to line graphs in that they use horizontal and vertical axes to plot data points. However, they have a very specific purpose. Scatter plots show how much one variable is affected by another. The relationship between two variables is called their correlation.

Scatter plots usually consist of a large body of data. The closer the data points come when plotted to making a straight line, the higher the correlation between the two variables or the stronger the relationship.

Box and Whisker Plot (Boxplot)

In 1977, John Tukey published an efficient method for displaying a five-number data summary. The graph is called a boxplot (also known as a box and whisker plot) and summarizes the following statistical measures: A boxplot is a visualization method used in statistics. It shows, in a glimpse, several very important elements regarding a data sample:

- the smallest observation (least data value)
- the lower quartile (25%)
- the median (50%)
- the higher quartile (75%)
- the largest observation (greatest data value)

A box and whisker plot shows the median or the middle point of the data. The “box” in the box and whisker plot contains the median or middle half of the data or numbers in a list. Next, the median of each of the halves is calculated. These two points result in a “whisker” on the left and a “whisker” on the right of box.

Reading a Boxplot

The boxplot is interpreted as follows:

- The box itself contains the middle 50% of the data. The upper edge (hinge) of the box indicates the 75th percentile of the data set, and the lower edge (hinge) indicates the 25th percentile
- The line in the box indicates the median value of the data.
- The ends of the lines or “whiskers” indicate the minimum and maximum data values.

Misleading Graphs

When creating bar and line graphs and scatter plots, students may make errors that lead to misleading graphs. These errors pertain to the axes of the graphs. The errors are:

- missing zero
- distorted scale
- missing categories

Missing Zero in the Vertical Axis

In every bar graph, line graph, or scatter plot, the vertical axis should include the "zero." If the zero is not shown and the vertical axis starts with a non-zero number for some reason (for example, the range of interest is very narrow), the vertical axis should be drawn as a broken axis to show the missing part of the scale.

Changing the range of scale on the vertical axis clearly distorts the relative lengths of bars in a bar graph, the shape of line in a line graph, or the shape of the "dot cloud" in the scatter plot.

Distorted Scale

Graphs may be used to support a point-of-view and thus, may "distort" the information through the way a graphic is created. However, the use of different scales creates very different looking graphs.

Missing Categories

Attention should be paid to the horizontal axis as well as the vertical one. If the horizontal axis shows ordinal or categorical variables, then it should display all the categories with no gaps or missing elements.

Selecting the Right Graph

Charts, tables, line graphs, bar graphs, and circle graphs/pie charts are appear in mathematics, social studies, and science. However, there are additional graphics that are used in other sections of the GED® Test, as well as in the workplace. The following is a brief overview of the “right” graph to use for specific data.

Selecting the Right Graph

	Bar Graph	Pie Chart	Line Graph	Pictograph	Organizational	Flow Chart
Whole and Its Parts	No	Maybe	No	Maybe	Yes	Maybe
Simple Comparisons	Yes	Yes	Maybe	Yes	No	No
Multiple Comparisons	Yes	No	Maybe	Maybe	No	No
Trends	Yes	No	Yes	Maybe	Maybe	No
Frequencies	Yes	No	Yes	No	No	Maybe
Sequences	No	No	Maybe	No	Yes	Yes

Teaching Graphic Literacy Vocabulary Knowledge

Students should understand the language of graphic literacy. Some of the vocabulary terms that should be included in lessons are:

Graph	Data	Bar	Representation	Dependent
Pie	Plot	Chart	Numerical data	Independent
Vertical axis	Horizontal axis	Line	Value	Point
Relationship	Complex	Simple	Scale	Spreadsheet
Label	Grid line	Column	Increment	Diagram
Comparison	Plot	Scatter	Legend	Statistic
X Y coordinates	Percentage	Trend	Graphic design	Variable

Challenges with Graphic/Visual Literacy

Although students may be able to identify basic information from a graphic, difficulty often exists when students must analyze the data in order to answer a multiple-choice type of question on the GED® Test.

Students may have problems with:

- Perception of graphics – Students often expect to see specific information on the graphic to answer a question. Instead, students may need to retrieve two or more pieces of information, perform a process, and then obtain the answer.
- Inattention to the details of graphics – Reading the titles, labels, and captions accompanying a graphic are important to accurately analyzing information. Students may not pay adequate attention to these types of details.
- Irrelevant data – Students may treat all data as relevant to the question, when sometimes entire sections, columns, or labeled portions are not relevant to the question being asked.
- Inattention to questions – To be successful in answering GED® questions, students must first accurately read and comprehend the question being asked. Analyzing a graphic does no good if students do not understand the information for which they are searching.
- Not using prior knowledge – Students may need to access their own background knowledge in order to accurately answer a question that uses graphics or graphics and text. If students are analyzing a graphic on precipitation, they must understand the term precipitation and may need to know that 0° Celsius is freezing.

Other Types of Graphics for the GED® Classroom and the Real World

Photographs

Students often struggle understanding photographs on the GED® Social Studies Test. While more mature adults may have some personal experience or background knowledge related to the era in which the photograph was taken, many young students struggle to understand what story the photograph has to tell. Many students lack of historical background knowledge that will enable them to understand these photographs. It is very important that teachers expose students to a wide range of historical photographs. This will enable students to work with the photographs and learn something about the historical era they depict.

Key Questions for Interpreting Photographs

Start with photographs that include content with which students may be familiar. Have students analyze these photographs using the questions listed below. When students are comfortable with the process, move to historical photographs. Keep in mind that this activity will work best when working in small groups.

The following are some basic level questions that you can ask students if they have difficulty with some of the elements listed above.

- 1) What do you see?
- 2) What would you hear if you were in this picture?
- 3) What would you smell if you were in this picture?
- 4) What could you feel with your hands? With your feet?
- 5) What emotions do you feel as you view this picture?

Move on to more advanced questions when students are comfortable with the process. Provide some historical context for the student when needed.

- Subject matter
 - What is the main subject?
 - What is going on in this photograph?
 - What do you see that makes you think that?
- Time
 - When do you think the photograph was taken?
 - What do you think happened before?
 - What do you think happened after?
- Visual Elements
 - Light
 - Color
 - Texture
- Historical Context
 - Where do you think it was made?
 - Who are the people in the photograph?
 - What was happening in history when this photograph was taken?

Samples Photograph



Editorial Cartoons

Editorial cartoons continue to present major challenges to the GED® student. The interpretation of editorial cartoons requires that students have some background knowledge related to various eras in history (U.S. and world), economics, civics and government (with special emphasis on politics). In addition, many adult students take a very literal approach to any text and editorial cartoons are filled with information that requires higher order thinking skills.

Students need to be aware that cartoonists often use the following when developing their cartoons.

Symbolism	Symbols stand for larger concepts or ideas. Identify the symbol and why it is being used.
Exaggeration	Physical characteristics of people are thing are exaggerated to make a point. Watch for any characteristic that seems overdone or overblown.
Labels	Objects or people are labeled to make the meaning of them clearer.
Analogy	Analogies show the comparison between two unlike things that share some characteristics. This enables the reader to look at a complex situation or issue from a more familiar vantage point.
Irony	Irony is often used to express an opinion on an issue. Irony is the difference between the ways things are and the way things should be or expected to be.

Daryl Cagle, a highly recognized political cartoonist and the host of a website (www.cagle.com) that displays the work of more than 60 cartoonists, provided the following questions that can help students interpret editorial cartoons.

Questions Students Need to Answer

1. What is the event or issue that inspired the cartoon?
2. Are there any real people in the cartoon? Who is portrayed in the cartoon?
3. Are there symbols in the cartoon? What are they and what do they represent?
4. What is the cartoonist's opinion about the topic portrayed in the cartoon?
5. Do you agree or disagree with the cartoonist's opinion? Why?

Symbols Students Should Recognize

Donkey	Statue of Liberty	Dollar bill	Bomb
Elephant	Capitol building	Cars and trucks	Someone in danger
Bear	Angel	Picket signs	Someone in pain
Bull	Grim reaper	Axe, sword, or knife	Prison
Dangerous animal	Uncle Sam	Energizer bunny	Father Time

Examples of Editorial Cartoons



Cartoon Analysis Worksheet

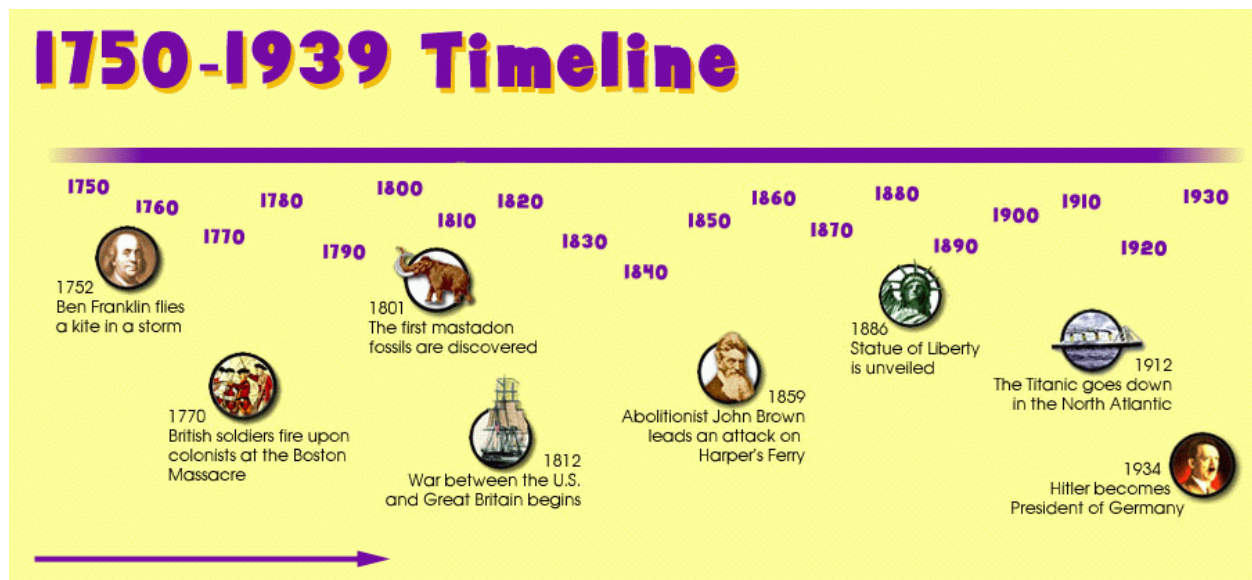
Level 1	
Visuals	Words
1. List the objects of people you see in the cartoon.	1. Identify the cartoon caption and/or title. 2. Locate three words or phrases used by the cartoonist to identify objects or people within the cartoon. 3. Record any important dates or numbers that appear in the cartoon.
Level 2	
Visuals	Words
2. Which of the objects on your list are symbols? 3. What do you think each symbol means?	4. Which words or phrases in the cartoon appear to be the most significant? Why do you think so? 5. List adjectives that describe the emotions portrayed in the cartoon.
Level 3	
A. Describe the action taking place in the cartoon. B. Explain how the words in the cartoon clarify the symbols? C. Explain the message of the cartoon. D. What special interest groups would agree/disagree with the cartoon's message? Why?	

Timelines

A timeline

- Is an ordered representation of events, generally displayed on a time scale
- Helps put curriculum in perspective
- Is an efficient graphic organizer
- Provides a tool for studying periods of time ranging from a day, a year, a century (or more), or an era
- Appeals to students' visual, mathematic and kinesthetic intelligences

The following is an example of a timeline that incorporates major events and references to specific historical figures during a given time frame.



To help students learn how to interpret timelines:

- Start with a list of events
- Make it personal
- Create life-maps
- Take it to other areas – history of the school
- Insert historical events that coincide with personal/life events
- Make the connection (What was happening in the country/world during the year you started in 1st grade?)

Maps

There are 5 geographical concepts that all students need to master. These include:

- Location – Where are different places on Earth? What is longitude and latitude? Which way is north, south, east, and west? How far is it from one place to another using the scale on the map?
- Place – What makes a place special? What is it like? Is it hot or cold? Are there mountains, deserts, or forests? What is unique about the language of the people, the type of government, architecture, and business?
- Relationships with places – How do people adjust to the places where they live or travel? How do they adapt to the environment in which they live?
- Movement – How do people get from one place to another – what are the patterns of movement
- Regions – 2 ways to look at them – physical such as landforms (mountains, deserts, continents, climate, soil, vegetation or cultural – political, economic, religious, language, agriculture, industry/business



Process Diagrams, Flow Charts, and Cycles

Process diagram – a graphical representation of a process flow, consisting of activities and the connections between those activities, which may include:

- Process
- Start, stop, and end points
- Connections
- Decisions
- Forks and/or loops
- Merges and joins

